

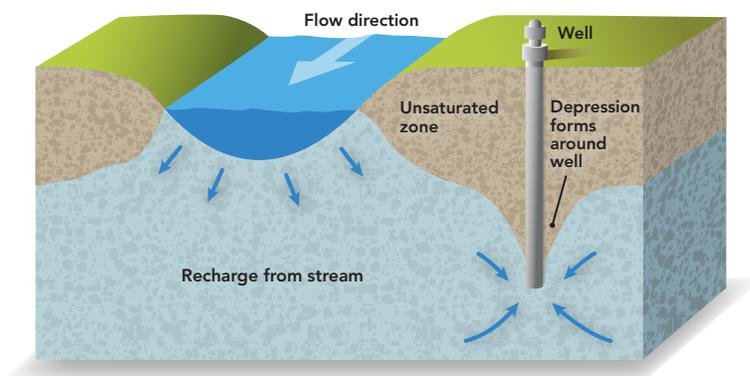
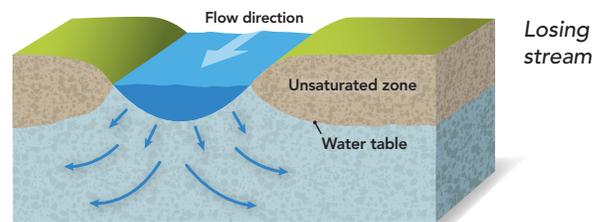
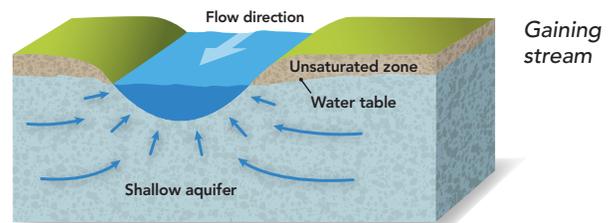
Groundwater and surface water interactions.

Natural variability is common in streamflow and wetland areas in California. Groundwater may play an important role in surface water ecosystems such as streams, springs, seeps and wetlands. In those cases, groundwater pumping can exacerbate stream depletion and impact wetland ecosystems. In turn, surface water depletion can unreasonably impact fish and other beneficial aquatic uses. Groundwater Sustainability Plans (GSPs) must establish threshold values and set forth actions to avoid this undesirable result.

Flowing surface waters are defined as either gaining or losing streams.

A **gaining stream** (or reach of a stream) is one in which the water level in the stream is lower than the level of the surrounding groundwater table, and groundwater moves from the ground into the channel.

A **losing stream** (or reach) is one in which stream water levels are above the groundwater table, and water moves from the channel into the aquifer.



How can groundwater pumping affect surface water levels and flowing streams?

Groundwater pumping, in combination with natural variations and/or reduced recharge, may lower the water table sufficiently to reduce the amount of groundwater that is contributed to a stream. In extreme cases, pumping may disconnect a surface water body from the underlying water table, changing the flow pattern so that a portion of the river actually flows into the aquifer below and may disappear at the ground surface.

Why does surface water depletion matter?

How does groundwater pumping affect surface water?

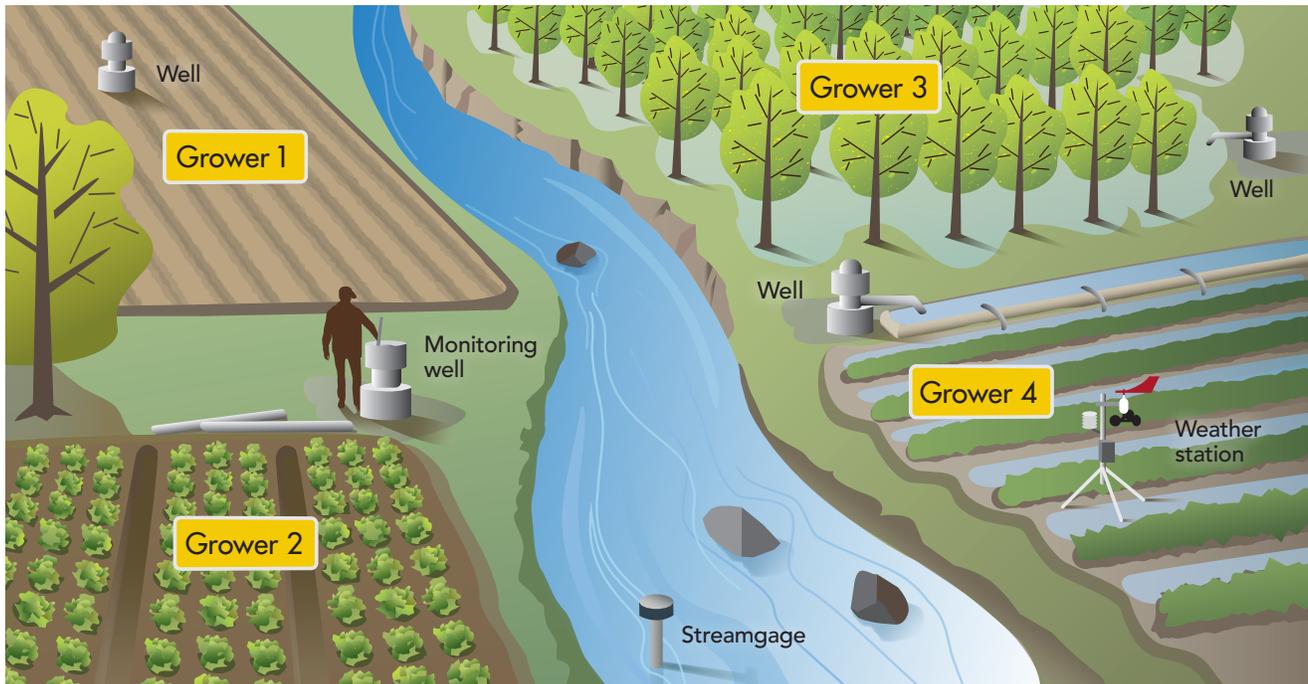
How might this impact future groundwater pumping?

Will surface water depletions affect me and my community?

How can we monitor groundwater and surface water interactions to demonstrate the success of our plan?

The distance of a well from the river and geologic characteristics at the well location will determine the timing and rate of the depletion in the river, if any. Well operations near streams tend to have a greater impact than pumping

distant from streams; modified operations of these wells may be required to minimize the effect on the stream. The success of such modifications can be measured using groundwater levels and streamflows monitored continuously at key locations. Additionally, measurements of precipitation, evapotranspiration, and soil moisture, in combination with modeling results, can help guide the development of the overall GSP.



What might I be asked to do?

- Make use of available data (such as evapotranspiration, soil moisture, streamflows) to inform and optimize irrigation practices
- Coordinate with my neighbors regarding the timing and rate of pumping
- Reduce pumping during specific seasons or under certain stream conditions
- Participate in groundwater recharge programs or projects
- Explore off-stream storage options
- Allow or participate in monitoring endorsed by my GSA

Be involved in your local GSA

SGMA encourages local landowners to work together to develop effective GSPs, and encourages neighboring basins to find common, acceptable solutions. Basins not managed locally, that fail to take corrective action over time, may have plans written and implemented by the State Water Resources Control Board.